The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Ex parte MAOCHENG LI, JOHN HOLLAND, VALENTIN N. TODOROV, PATRICK LEAHEY, ROBERT P. HARTLAGE and HOAN HAI NGUYEN

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Appeal No. 2005-1219
Application No. 09/774,192

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ON BRIEF

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Before FRANKFORT, PATE, and HORNER, Administrative Patent Judges.

PATE, Administrative Patent Judge.

## DECISION ON APPEAL

This is an appeal from the final rejection of claims 28, 33-39 and 42. Claims 3, 16-18 and 22-27 have been withdrawn from consideration as being direct to non-elected subject matter. Claims 19 and 29-32 have been cancelled. Claims 1, 2, 4-15, 20, 21, 28 and 33-42 stand finally rejected. As noted above, only claims 28, 33-39 and 42 are indicated as appealed. 37 CFR § 41.37(c)(iii). Any appeal as to claims 1-2, 4-15, 20, 21, 40 and 41 is dismissed.

The claimed invention is directed to an apparatus for processing a semiconductor wafer. The claimed subject matter may be further understood with reference to claim 28 appended to appellants' brief.

The references of record relied upon by the examiner as evidence of obviousness are:

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| Guo et al. (Guo) | 5,944,899 | Aug. 31, 1999 |
| Yoshida | 5,735,993 | Apr. 7, 1998 |

Claims 28, 33-39 and 42 stand rejected under 35 USC § 103 as unpatentable over Guo in view of Yoshida. For the details of this rejection reference is made to the examiner's Answer. For appellants' response to the examiner's rejection reference is made to the Brief and Reply Brief for the full details thereof.

## OPINION

We have carefully reviewed the rejection on appeal in light of the arguments of the appellants and the examiner. As a result of this review, we have determined that the applied prior art establishes the prima facie obviousness of all the claims on appeal. Appellants have not furnished any further evidence rebutting the prima facie case. Therefore we affirm the rejection of all the claims on appeal. Our reasons follow.

The following are findings of fact as to the scope and content of the prior art and the difference between the claimed subject matter and the prior art. Guo discloses an apparatus for processing a semiconductor wafer. Specifically, the device is for etching a wafer using a captive plasma. Guo uses a vacuum chamber 11 to receive a semiconductor wafer (not shown) on a conductive pedestal 22. Yoshida also discloses an apparatus to etch a semiconductor wafer. Yoshida, in the embodiment of Figure 7, discloses a chamber lid or wall with a Faraday shield or metallic plate 1a and a heater lb embedded therein. This embodiment of Yoshida also has an rf coil 1. Thus, Yoshida differs from the claimed subject matter in that, in Yoshida the heater and Faraday

shield are embedded inside the lid rather than placed atop. Also, as disclosed in Yoshida, the heater is placed closer to the chamber than the Faraday shield, the reverse of the orientation claimed in appellants' claim 28. We agree with the examiner that it would have been obvious to use the heater lid structure of Yoshida in the plasma chamber of Guo for the disclosed advantage of preventing contaminants from forming in the plasma chamber.

As with many cases that come before us, the devil is in the prepositions. In this instance, we must construe the claim limitation that says the heater is "disposed outside of the vacuum chamber". Yoshida, relied upon by the examiner to teach the heater and its placement, embeds the heater and the shield in the chamber lid. Applying to the claim verbiage the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification, *In re Morris*, 127 F.3d 1048, 1053-54, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997), we construe the phrase "outside of the vacuum chamber" to mean outside the volume where the plasma is struck. Accordingly, we construe the heater and Faraday shield to be outside the chamber when they are embedded in the interior of the chamber wall or lid. We believe this to be the broadest reasonable construction of the claim language. We acknowledge that appellants argue that access to the heater and shield obviate the need to open the chamber for servicing or repair, but we merely point out that the claims do not reflect the scope of this argument. They are broader.

In fact, claim 28 is broad enough that "the chamber wall" can be read on the other three walls of the chamber 10 shown in Figure 7 of Yoshida, without the lid. It is noted that the heater 1b

is embedded in the lid and would be thermally coupled to the chamber wall 10 by contact. A heater lb embedded in the lid would be between the coil 1 and the other three walls that make up the vacuum chamber. The chamber wall is not recited as the lid until the unargued dependent claims.

With regard to the other difference between Yoshida and the prior art, the examiner states that the placement of the Faraday shield above or below the heating element is a choice of design and obvious to one of ordinary skill in the semiconductor manufacturing art. The examiner further states that the device would function the same no matter whether the shield is placed above or below the heater. While appellants have argued that the placement of the shield and heater are not arbitrary, this appears to refer to the placement of the heater and shield on top of the chamber lid and does not concern whether the shield placed below or above the heater is patentably significant. Appellants' argument concerns whether the heater and shield are easily replaceable and does not address whether the shield placed above or below the heater would function differently. Inasmuch as the examiner has stated that the placement of the shield would have been obvious in the art, and the appellants have contradicted him with neither argument nor evidence, we hold that the placement of the Faraday shield would have been obvious to one of ordinary skill in the art.

Since all claims were stated to fall with independent claim 28, we affirm the section 103 rejection of all claims on appeal.

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**Time for Taking Action**

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

**AFFIRMED**

Charles E. Frankfort
Administrative Patent Judge

William F. Pate, III
Administrative Patent Judge

Linda E. Horner
Administrative Patent Judge

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